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(56) Documents cited

**GB 1059089 A**

**GB 0723361 A**

**GB 0697248 A**

**GB 0688466 A**

**GB 0555034 A**

**US 4891149 A**

(58) Field of search

**UK CL (Edition K) C5D DDA DHA DJC**

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**Online databases: WPI**

(54) **Floating soaps**

(57) Floating soap is produced by including silicate of soda in its composition. The silicate of soda is added together with borax or titanium dioxide as setting agent, after hydrolysis of the basic soap ingredients. This may be done as a continuation of basic-soap production, or by adding the silicate of soda to commercially-available soap chips or nodules. The addition may be made to a melt of the chips or nodules, or after the chips or nodules have been reduced to particle- or granular-size. In the latter case, a blend of the soap with the silicate of soda, water and a setting agent, is extruded through a hot nozzle.

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Soaps

This invention relates to soaps and their manufacture.

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The invention is concerned especially with soaps that float.

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Tablets of soap do not in general, float in water, and attempts have been made in the past to obtain floatation by buoyancy elements added as inserts or otherwise to the tablet.

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It is an object of the present invention to provide a soap, and a method of manufacture thereof, which by virtue of its composition floats naturally without the need for buoyancy aid.

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According to one aspect of the present invention there is provided a soap having a composition that includes silicate of soda to afford buoyancy to the soap.

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It has been found that by including silicate of soda in the soap composition, sufficient buoyancy to enable the soap to float in fresh water, can be readily achieved. Furthermore, it has been found that with silicate of soda included in its composition, the soap generally dissolves in water less rapidly, and is less likely to produce unsightly residue or deposit from the water.

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It is believed that the silicate of soda forms a water barrier surrounding individual particles or granules of the soap within the tablet and that the presence of this barrier, which may possibly trap air, contributes to the experienced buoyancy.

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The amount of silicate of soda included within a tablet of soap to cause it to float may be in the range of 2% to 5% by weight; a range of 2.5% to 4.75% by weight, may be preferable.

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According to another aspect of the present invention there is provided a method of manufacturing a soap wherein silicate of soda is included in the soap composition.

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The composition of a soap in accordance with the present invention may be conventional apart from the inclusion of silicate of soda. The silicate of soda may be included after the hydrolysis stage in which one or more animal or vegetable oils of the soap composition are heated with dilute sodium or potassium hydroxide.

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Examples of soaps and methods of manufacture thereof in accordance with the present invention will now be described.

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In the first example to be described, tablets of toilet soap are manufactured by a process in which coconut and tallow oils are stirred together in a solution of caustic soda that is heated to, and maintained at, 60 degrees Celsius. After a sufficient time for hydrolysis to have taken place, other components of the soap including, in particular, silicate of soda, are added.

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In addition to the silicate of soda, there is added powdered borax, mineral oil, benzene and petroleum jelly, together with whatever perfume or colouring is desired; titanium dioxide is a possible alternative to borax as setting agent. The resulting composition is heated to, and maintained for a short while (e.g. one minute) at, 65 degrees Celsius. After this, it is poured into moulds and the temperature reduced to -10 degrees Celsius and

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maintained at this level for about one hour, before the resulting soap tablets are released from the moulds for toilet use. A vacuum drying process may be used in addition, or as an alternative, to freeze drying.

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The quantities (in ounces with the equivalent in terms of grammes) of ingredients used in soap-tablet manufacture described above, and sufficient for ten tablets, may be as set out in the following table:

10	<u>ingredient</u>	<u>ounce</u>	<u>gramme</u>
	coconut oil	9	255.15
	tallow oil	13	368.54
	caustic soda	4	113.40
	silicate of soda	3	85.05
15	powdered borax	$\frac{1}{2}$	14.17
	mineral oil	6	170.10
	petroleum jelly	$2\frac{1}{2}$	70.87
	benzene	$\frac{1}{2}$	14.17
	perfume (if any)	$\frac{1}{2}$	14.17
20	colouring (if any)	2	56.70

The quantity of caustic soda identified above is diluted in about 0.33 pint (0.19 litre) of water when mixed with the coconut and tallow oils.

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In a second example, soap chips or nodules, which are commercially available as the product of the basic hydrolysis process of conventional-soap manufacture, are used. The silicate of soda together with other desired ingredients, may be added to a melt of the chips or  
 30 nodules, but, preferably in this case, is added to the chips or nodules as these have been reduced mechanically (for example, in a shredder) to particles or granules of

about 2 mm or less in diameter. In this latter case, water and a setting agent in the form of borax or titanium dioxide, is added with the silicate of soda, and the whole is then blended together for some 3 minutes.

- 5 The resultant blend is then extruded using a plodder with a heated extrusion nozzle. The nozzle is maintained at a temperature of between 40 and 60 degrees Celsius, and the parison produced is then cut and shaped as necessary to the tablet-form required.

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The method of the second example may be carried out using 2 to 5 ml of silicate of soda, 130 ml of boiled water and 4 gram of borax powder to each kilogram of soap chips or nodules.

**Claims:**

1. A soap having a composition that includes silicate of soda to afford buoyancy to the soap.
2. A soap according to Claim 1 wherein the silicate of soda is included to 2% to 5% by weight of the composition.
3. A soap according to Claim 1 wherein the silicate of soda is included to 2.5% to 4.5% by weight of the composition.
4. A soap according to any one of Claims 1 to 3 including borax as a setting agent.
5. A soap according to any one of Claims 1 to 3 including titanium dioxide as a setting agent.
6. A method of manufacturing a soap wherein silicate of soda is included in the soap composition.
7. A method according to Claim 6 wherein the silicate of soda is added to a product of hydrolysis.
8. A method according to Claim 6 wherein soap chips or nodules are melted down and the silicate of soda is added to the melt.
9. A method according to Claim 6 wherein the silicate of soda is blended with particles or granules of soap and the blend is extruded.
10. A method according to any one of Claims 6 to 9 wherein borax is added with the silicate of soda, as a setting agent.

11. A method according to any one of Claims 6 to 9 wherein titanium dioxide is added with the silicate of soda, as a setting agent.

12. A method of manufacturing a soap, substantially as hereinbefore described as said first example.

13. A method of manufacturing a soap, substantially as hereinbefore described as said second example.

14. Soap manufactured by a method according to any one of Claims 6 to 13.

15. A tablet of floating soap substantially as hereinbefore described.

**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

-7-

Application number  
 9210394.4

**Relevant Technical fields**

(i) UK Cl (Edition K ) C5D (DDA, DHA, DJC)

(ii) Int CL (Edition 5 ) C11D

Search Examiner

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**Databases (see over)**

(i) UK Patent Office

(ii) ONLINE DATABASES: WPI

Date of Search

25 JUNE 1992

Documents considered relevant following a search in respect of claims

1 TO 15

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 1059089 (PROCTER AND GAMBLE) Example II	1
X	GB 723361 (BRITISH GLUES)	1
X	GB 697248 (PROCTER AND GAMBLE) Example 8	1
X	GB 688466 (LEVER) Examples 1 to 5	1
X	GB 55034 (PROCTER AND GAMBLE) See page 4 lines 24-60, page 7 lines 64-128 and page 8 lines 87-118	1
X	US 4891149 (NAGARAJAN ET AL)	1

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Category	Identity of document and relevant passages	Relevant to claim(s)

**Categories of documents**

**X:** Document indicating lack of novelty or of inventive step.

**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.

**A:** Document indicating technological background and/or state of the art.

**P:** Document published on or after the declared priority date but before the filing date of the present application.

**E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.

**&:** Member of the same patent family, corresponding document.

**Databases:** The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

